1,097,394

PATENT SPECIFICATION

DRAWINGS ATTACHED

1,097,394

Inventor: DEREK HOGG.

Date of filing Complete Specification: April 8, 1965.

Application Date: May 5, 1964. No. 18588/64.

Complete Specification Published: Jan. 3, 1968.

Index at Acceptance:—B7 C39.

Int. Cl.:—B 60 b 13/00

COMPLETE SPECIFICATION

Improvements in or relating to Wheel Balance Weights

We, DUNLOP RUBBER COMPANY LIMITED, a British Company, of 1, Albany Street, London, N.W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in wheel balance weights.

According to the invention, a wheel balance weight comprises a body of elongated form and a clip secured by one portion to the body between the ends of the body, the clip extending, from its secured portion, partly around the body and in spaced relationship therefrom, to a free end for engagement with the rim of a wheel, and the body having a longitudinally extending surface in a position substantially opposing the free end of the clip, at least two portions of said surface which are spaced apart longitudinally of the body at least one on each side of the clip projecting laterally with respect to the central portion of said surface, so that when the weight is clipped to a wheel rim points of contact exist between the clip and the rim and between the said two or more portions and the rim.

Preferably the surface is located with respect to the clip so that the said two or more portions are engageable with the radially inwardly curved portion of the flanged portion of the rim.

Preferably also the clip is formed integrally with the body. Alternatively the clip may be detachable from the body.

According to the invention also, a wheel incorporates a wheel balance weight as defined in the preceding paragraphs fitted to its wheel rim wherein points of contact exist between the clip and the rim and between the said two or more portions and the rim.

The phrase "point of contact" when used in the present context includes line contact and areas of contact where the areas are small in comparison with the surface area of the body of the wheel balance weight.

[*Price 4s. 6d.*]

Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings in which:

Figure 1 is a cross-sectional view on a central plane of a wheel balance weight according to the invention partially fitted to a wheel rim.

Figure 2 is a view on arrow II of the balance weight alone of Figure 1 on a reduced scale;

Figure 3 is a similar view to that of Figure 2 of a second embodiment of the invention.

In a first embodiment, shown in Figures 1 and 2, a wheel balance weight 1 comprises a moulded body 2 of elongated form which consists of a homogeneous mixture of 92 per cent by weight of lead and 8 per cent by weight of antimony.

The body is of generally longitudinally arcuate shape to lie substantially in intimate engagement with the inner peripheral surface of a wheel rim flange 3 to which the weight is to be fitted along a convex surface 4. A concave surface 5 lies in opposed relation to the convex surface 4. In lateral cross-section, the body is of substantially quadrilateral shape with convex corners. The body is also provided with a second concave surface 6 which lies adjacent the convex surface 4 and extends longitudinally of the body from one end to the other.

The weight is also provided with a clip 7 which is located substantially midway between the ends of the body. The clip is formed from a short strip of spring steel which is bent into a U-shape, and to secure the clip to the body, the body is moulded around one leg of the clip, the clip projecting from the body adjacent the convex surface thereof with its unsecured leg extending around the convex surface 4 towards the second concave surface 6 of the body with the end 7*a* of the clip substantially opposing the surface 6.

To fit the weight to a wheel rim, the weight is forced onto a bead retaining flange of the rim so that the flange is gripped at one point between the end 7*a* of the clip and the convex surface of the flange. As the weight is forced

onto the rim, the second concave surface 6 of the body approaches the portion of the flange which curves radially inwardly with respect to the axis of rotation of the wheel to merge with the disc portion of the wheel, and movement of the weight axially onto the rim ceases when the points of the second concave surface at the ends of the body lie in abutting engagement with this radially-inwardly-curved portion of the flange.

The balance weight is now located in its correct position upon the wheel rim flange, in which position points of contact exist between the clip and the flange and at each end of the body, between the second concave surface and the radially-inwardly-curved portion of the rim flange. In its correct location upon the rim, the body of the weight is spaced-away from the adjacent radially-extending surface of the disc portion of the wheel.

With the balance weight secured in this manner, it is found that rocking movement of the weight upon the rim, which would cause loosening of and subsequent detachment of the weight from the rim is impossible, as the points of contact existing between the second concave surface and the rim, one on each side of the clip, prevent such movement.

In a second embodiment, shown in Figure 3 a wheel balance weight is of similar construction to that described in the first embodiment, except that instead of being provided with a second concave surface extending longitudinally from end-to-end of the body 2 as in the first embodiment, the corresponding surface of the body of the weight of the second embodiment is provided with two projections 8*a* and 8*b* positioned adjacent the ends of the body, one projection to each end.

When the balance weight is fitted to a wheel rim, in the manner described in the first embodiment, points of contact exist between the weight and the flange as described in the first embodiment, but, in this case, the points of contact existing one on each side of the clip, are provided between the projections 8*a* and 8*b* and the radially-inwardly-curved portion of the rim flange, instead of between the ends of a second concave surface and the rim flange.

The balance weight of the second embodiment is prevented from rocking upon the rim in a manner similar to that described for the first embodiment.

In a modification of either of the above embodiments the clip 7 is not moulded integrally with the body of the weight but is formed separately and means e.g. screw-means, are provided for securing the clip to the body.

As a gap is provided between the body of a balance weight according to the invention and the radially extending surface of the disc portion of the wheel, then a wheel embellishment, which may be in the form of an annular decorative metal disc surrounding the wheel hub cap, may be positioned upon said radially extending surface to extend radially outwardly into the gap so provided, the radially outer regions of the embellishment lying adjacent the radially inwardly curved portion of the rim flange.

In some cases, however, wherein a more common form of wheel balance weight is fitted to a rim, it is impossible to position an embellishment upon the radially extending surface of the disc portion of the rim so as to extend to the radially inwardly curved portion of the flange, as the more common forms of balance weights are not spaced-away from, but are seated upon the radially extending surface of the rim disc portion.

WHAT WE CLAIM IS:—

1. A wheel balance weight comprising a body of elongated form and a clip secured by one portion to the body between the ends of the body, the clip extending from its secured portion, partly around the body and in spaced relationship therefrom to a free end for engagement with the rim of a wheel, and the body having a longitudinally-extending surface in a position substantially opposing the free end of the clip, at least two portions of said surface, which are spaced apart longitudinally of the body at least one on each side of the clip projecting laterally with respect to the central portion of said surface, so that when the weight is clipped to a wheel rim points of contact exist between the clip and the rim and between the said two or more portions and the rim.

2. A wheel balance weight according to Claim 1 wherein the surface is located with respect to the clip so that the said two or more portions are engageable with the radially inwardly curved portion of the flange portion of the rim.

3. A wheel balance weight according to either of Claims 1 and 2 wherein the said surface is of concave form.

4. A wheel balance weight according to either of Claims 1 and 2 wherein the said surface comprises two end portions which project beyond an intermediate portion.

5. A wheel balance weight according to any of the preceding claims wherein the clip is formed integrally with the body.

6. A wheel balance weight according to any any of Claims 1 to 4 wherein the clip is detachable from the body.

7. A wheel balance weight constructed and arranged substantially as described herein and shown in Figures 1 and 2 of the accompanying drawings.

8. A wheel balance weight constructed and arranged substantially as described herein and shown in Figures 1 and 3 of the accompanying drawings.

9. A wheel incorporating a wheel balance weight according to any of the preceding claims fitted to its wheel rim wherein points of contact

exist between the clip and the rim and between the said two or more portions and the rim.

C. H. BOWYER.
Agent for the Applicants.

Printed for Her Majesty's Stationery Office by J. Looker Ltd., Poole, Dorset. 1968.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.

1,097,394
1 SHEET

COMPLETE SPECIFICATION

This drawing is a reproduction of the Original on a reduced scale.

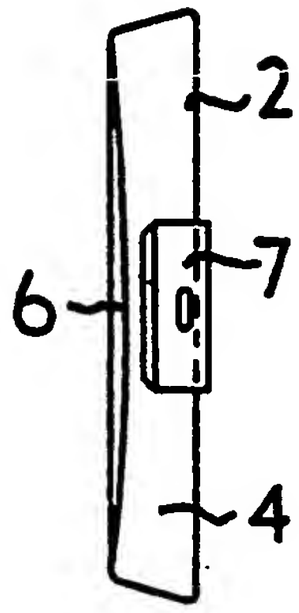

FIG. 2

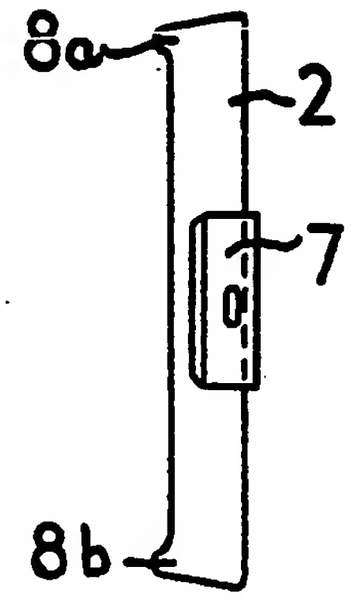

FIG. 3

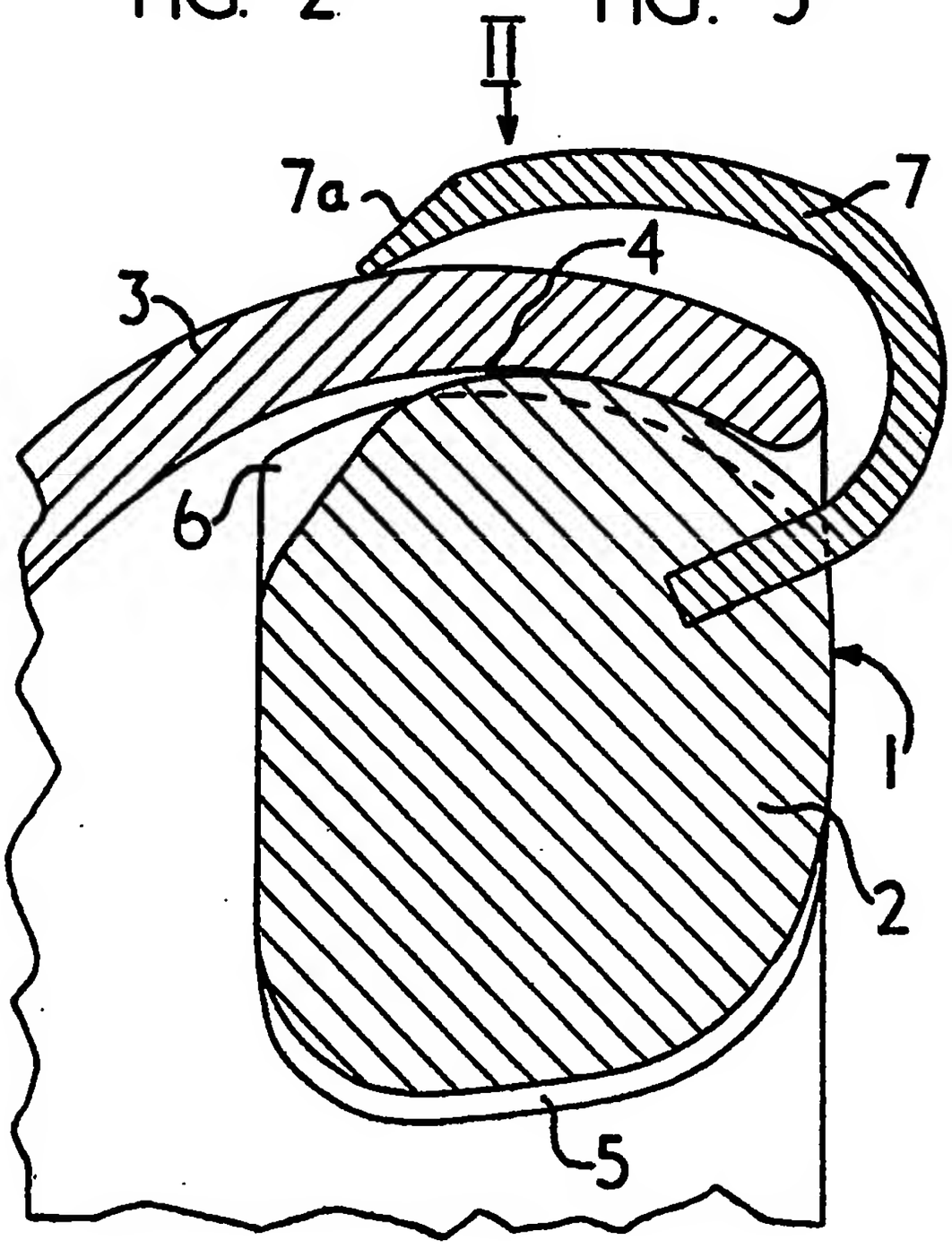

FIG. 1